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ABSTRACT

This document discusses the IBM project HANDY that uses an authoring language for the development of interactive teaching lessons. The paper describes a series of lessons that explored various aspects of color and motion in relation to general principles of basic design. The IBM language is designed so that teachers can write a script, create graphic images, and call upon a video disk, audio tapes, and music to create a drama of events on the screen. The language offers almost unlimited possibilities for the artist and designer. The computer becomes an electronic sketchbook, an essential artistic vehicle to state an idea, vary that idea, try all possible combinations of color, texture, and movement, and finally produce an almost endless series of variations on the basic theme. The output assumes many forms. With a color printer it can produce hard copy. A series of slides can be used as the basis for paintings for a sequence of images, which, when combined with text, can serve as the basis for book and story illustrations. The HANDY project has evolved over time and the essential focus changed. The strengths and weaknesses of HANDY as a language are discussed. One effective means of introducing computer based art and design programs into the schools would be in an art course for elementary teachers that would include an introduction to computer graphics. (DK)

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The Use of the Computer in the School Art Program

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Abstract

The IBM project was called HANDY and it involved the use of an authoring language for the development of interactive teaching lessons for use with adults as well as children. I created a series of lessons exploring various aspects of color and motion in relation to general principles of basic design.

This IBM language, soon to be on the educational market, is called "Experimental Playmaker Language" and as the title indicates, it is designed so that the teacher can write a script, create graphic images, and call upon video disk, audio tapes, and music to create a drama of events upon the screen.

As my own design work with this language began to evolve, I saw almost unlimited possibilities for the artist and designer. The computer became my electronic sketchbook. It became an essential artistic vehicle in which I could state an idea, vary that idea, try all possible combinations of color, texture, and movement and finally produce an almost endless series of variation upon the basic theme. The output has assumed many forms. It can be outputted from the computer onto hard or soft disk files. With a color printer it can produce hard copy. A series of slides which can be used as the basis for paintings for a sequence of images which, when combined with text, can serve the basis for book and story illustrations in children's literature.

"IMAGE PROCESSING"

"The Micro-Computer as Interactive Technology"

INTRODUCTION

As many artists and designers, I too had, for a long time resisted involvement with the personal computer. I had conceived of the micro-computer as being too impersonal, remote, non-creative, and certainly less then "user-friendly". I did not view it as a possible design tool.

In the summer of 1985, due to an IBM project called HANDY, my own attitude towards the computer took a dramatic change. I became "hooked" on this new technology. The IBM project involved the use of a new authoring language for the development of interactive teaching lessons for use with adults as well as children. I began to create a series of lessons exploring various aspects of color and motion in relation to general principles of basic design.

As my own design work with this new language began to evolve, I saw almost unlimited possibilities for the artist and designer. The computer became my electronic sketchbook. It became an essential artistic vehicle in which I could state an idea, vary the idea, try all possible combinations of color, texture, and movement and finally produce an almost endless series of variations upon the basic theme. The output has assumed many forms. It can be outputted from the computer onto hard or soft disk files. With a color printer it can produce hard copy. A series of slides which can be used as the basis for paintings or design; a sequence of images which, when combined with text, can serve the basis for book and story illustrations; and films or video tapes which can exist as their own creative statements. It became for some an image processor.

By an image processor I mean a device which can store and quickly present graphic images that can be altered, saved, and/or directed to a specific output such as hard copy, slides, tape, etc.

Has the machine taken away my personal and creative vision? Has the "life of the studio" with the smell of the paint, the taste of the clay and plaster dust come to be replaced by the blinks, beeps, and shakes of my electronic images? Am I a slave of the machine? I think not! For me, the personal computer has become another creative tool. It, like the camera, can extend the perceptual limits of the artistic imagination. With it the creative artist can function yet another level of reality and awareness.

1. **Adventures in Color**

   My first project was an exploration of the use of color in design. This is a sequence of four interactive lessons on color which are designed to be used with young children. These units introduce the child to the general world of color and to what an be done with the limited range of colors and the program. HANDY provides 16 colors which can be combined in foreground as well as in background sequences.

(One of the extreme limitations of the HANDY program is the limited range of colors. The 16 colors (8 light value, 8 dark value) are probably suitable for use by children or other designers content to work with so limited a color choice, but as I have discovered, for the serious designers there are better programs.)

Handy was developed as a software package for use in schools and not as a computer graphics program.

The children can see what happens as the color relationships of the figure and background are changed in front of their eyes as the HANDY script runs the program. This gives a more dynamic view of the relationships of the design elements (line, color, shape, texture) in a given configuration.

The children can watch the entire sequence at the micro-computer and questioning procedures can be developed as a part of these instructional programs to ask questions about color and record the student's responses. In this mode, the

micro-computer seems to function very much like the teaching machine of the 1960s.

Adventures in Color I

This is the first in a sequence of three lessons called "Adventures in Color I". The focus of the three lessons as a unit was to show what happens when colors are changed in both figures and ground.

This lesson introduced the image of the Totem. The Totem is a symbol that has emerged from my own work as a printmaker and ceramic artist and designer. It represents to me at least a human-like image which can be related to many kinds of design problems.

This specific script is mainly concerned with the movement effects that are possible in the more general HANDY system. I found early in my research that both color and movement were the best aspects of the HANDY system which could be applied to this sequence of lessons in color.

Adventures in Color A

This project was the first which I completed in the HANDY sequence.

It is complete and was an attempt to use some of the existing HANDY images and show how by the use of a few simple color change commands those images could be used to show a student what might happen with the use of a very few simple elements in a design composition.

I have gone far beyond this in my own research and include it only as an example of where I began in my own use of HANDY in the summer of 1985.

Adventures in Color B

The various sequences in "the Adventures in Color Series" contains those methods of computer assisted graphics that were explored in the first sequence.

In this sequence the Totem figures were once again used but background scenes were developed so that the element of figure and ground could be more directly studied in this sequence.

I began to study the idea of entire patterns of color change in which one Totem figure was first changed color in and then all the rest were changed in order to imitate the first figure.

I also experimented with changes in color of the screen itself and by use of both colored backgrounds and the color of the screen itself. The variables of the figure and the ground interact with these color variables.

This sequence continues in the use of the Totem figures as a basic image along with the color which were outlined in the first sequence.

2. **Totem Figures Dance**

   This sequence of lessons explores movement in design and how a set of variations on figure and ground relationships might be created. One of the advantages of the HANDY program is the ability to write an animation script which will change the various relationships of figure and ground as well as key elements in the elements and principles of design such as balance, harmony, rhythm, etc. The child can be shown various design options and by the use of simple verbal commands by means of the HANDY scripts, the user can watch the visual results upon the computer screen.

3. **Garden of the Golden Section**

   The Garden of the Golden Section is a program which creates a series of images that are varied according to design principles and elements.

A series of 10 sequences in which both color and motion are used. These sequences include poetry and music and construct a series of stories about the adventure of color in the Garden.

I shall discuss how, for me, the HANDY project was to evolve over time and how my essential focus changed several times as I discovered more about the possibilities which HANDY could give to the artist and designer. I will discuss what I feel to be the strengths and weakness about HANDY as a language.

The Beginning

My approach to HANDY was very different from the other members of a faculty group who worked on this project. I did not develop a conceptual model nor review the research for what I planned to do, instead I went directly to the computer and the program to see what I could create. On the one hand this methodology may have been somewhat wasteful of time; however, I believe that I gained a great deal of intuitive insights concerning the nature of the computer and of computer graphics.

A personal note! This was my first introduction to the use of the computer to create those visual images which some call "art".

Many individuals in the visual arts tend to be right brain oriented. In other words, they are more intuitive in their basic thought processes. They are less conceptually oriented and do not use analytical skills as their major mode of processing information and solving problems. It became immediately obvious to me that most of my fellow faculty in education members were inclined to the left brain mode. In general, left-brain functions do seem to relate more to computer science, computer programming, and to computer use.

My use of other software packages such as Dr. Halo (IBM), Paint-Plus (Apple G/S), Draw Plus (Apple G/S), and Fantavision (Apple G/S) all have reinforced my

initial perception of the use of the computer to produce art was a right-brain function. It tends to de-emphasize the use of the program manuals and emphasize and encourage the use of an icon and file based approach such as are in the Macintosh programs. In fact, one of the disadvantages of the HANDY system is that it is less visually oriented and more dependent upon verbal procedures from the software manuals.

Growth

As I have progressed with work with the personal computer over a four year period, I can now perceive that at least as far as computer graphics might be concerned; there are a number of right-brain functions that can be utilized. These right-brain functions seem to be as follows:

(a) Transformations

Changes in size, shape, and position as a function of commands in the HANDY script or by the use of specific icons in the Dr. Halo software can achieve transformations permit the artist to try out a rather large number of very complex visual tasks.

(b) Multiplicity of Image

Various shapes, lines, textures and colors can be overlapped each other. These overlapped multiple images can be achieved by script commands in the HANDY program or by a variety of transformations in the Dr. Halo software packages.

Handy as an Authoring Language

Some of the strengths of the HANDY software are:

1. Long scripts can be developed which will create a wide range of images on the screen and which can animate them with the standard animation procedures.

2. Student can respond to questions and student responses can be stored.
3. The use of interactive video disk or video tape is possible.
4. It can be learned as a system with little previous experience with the use of computer.

Some of the weaknesses of the HANDY software are:

1. It uses keystroke rather than pixel based graphics.
2. It uses keystrokes rather than a mouse or kola pad as means as input.
3. A very limited use of circles and curved lines are possible.
4. The color and texture range is very limited.
5. The characters and type faces possible for text is very limited.

The great strength of HANDY is the story script aspects and some of the animations that can be employed to create a drama on the type of the computer screen.

The HANDY program is now under revision and some of the weaknesses noted by this writer and others are being considered as the software development of HANDY means a completion. Almost all of the weaknesses noted above are being addressed in the revision process.

Implications for Art Education

The art education profession has demonstrated a considerable interest in the development of computer graphics as a part of the pre-service education of the art teacher. However, few art rooms in the schools have computers available for the students so the art teacher who may wish to introduce this new technology is often frustrated by lack of equipment support.

In many schools the computer is located in self-contained elementary classrooms. The problem is that the elementary classroom teacher who is not an art specialist has not been introduced to computer graphics as a part of a course

which most take called

"Art for Elementary Teachers".

I propose that one effective means of introducing computer based art and design programs into the schools would be in such a course.

References

McWhinnie, H. J. (1988) "Technology Updates", Computer & Graphics, Vol. 12, No. 1, 1988.

McWhinnie, H. J. (1988) "Simulation vs. Abstraction", Leonardo, (In Press), 1988.

McWhinnie, H. J. (1987) "The Electronic Sketchbook", Computer & Graphics, Fall, 1987.

McWhinnie, H. J. (1986) "Computer and Art Education", Viewpoints.